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TouchTunes

TECHNICAL BULLETIN
Improvements to Zone Management

About this Technical Bulletin

This technical bulletin is for TouchTunes Jukebox Operators, TouchTunes field service, customer support, and sales personnel in North America.

About Zone Management

It is now possible to split the three existing output zones, for a total of 6 mono output zones whose volumes can be managed independently.

This allows venues to double their jukebox music coverage areas, offering further customization in-venue and an increased revenue opportunity.

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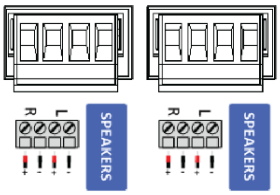
Safety Considerations and Recommendations

Before you proceed with activating any of the new zones, we recommend that you:

- **Bring the volume down to a low, but still audible level on any zones you plan to impact**
- **Rewire the speakers according to your chosen zone configuration (see the**

When rewiring speakers for new zone configurations, make sure that the impedance on both channels of each amplifier zone matches. Mismatched impedance on a particular zone could lead to audio quality degradation, abnormally low volume, or the amplifier shutting down to protect itself.

In particular, remember that the internal amps on some jukeboxes offer two euroblock connectors per zone, with a left and a right pair on each connector, and that internally, the two left pairs and the two right pairs are wired in parallel. This means that if you connect a second speaker circuit to the same channel, the two speaker circuits will lower the total impedance on that channel. If that impedance goes too low, the amplifier could shut down to protect itself.



Lower all volumes before you rewire speakers, and rewire the speakers before you activate or deactivate the new zones. This will reduce the risk of causing the volume to suddenly get much louder on the affected speakers.

Make sure the polarity of all speakers matches to avoid phase issues, except where you have to intentionally flip the polarity to fix such an issue.

If you are moving a hard disk from a jukebox that has the Amplifier Bridging feature turned on, to a second jukebox that does not support bridging (such as Playdium), deactivate the bridging before taking the hard disk out. If the amp bridging setting gets copied over to the second jukebox, this will disable the zone management options for the zone where bridging was turned on, but the bridging option will not be accessible to turn it off.

Regarding Karaoke

Zone Management does not support Karaoke. If your jukebox is setup for Karaoke, you will not be able to activate any of the extra zones.

Conversely, while any of the extra zones are activated, Karaoke cannot be turned on. If you attempt to launch Karaoke, a message reading “KARAOKE N/A” will be displayed on the LED Array or On-Screen Display (depending on the jukebox model.)

If you no longer use Karaoke on a jukebox, and would like to benefit from Zone Management, turn off the Karaoke Service setting under Services > Karaoke Options. This will enable the Zone Management controls.

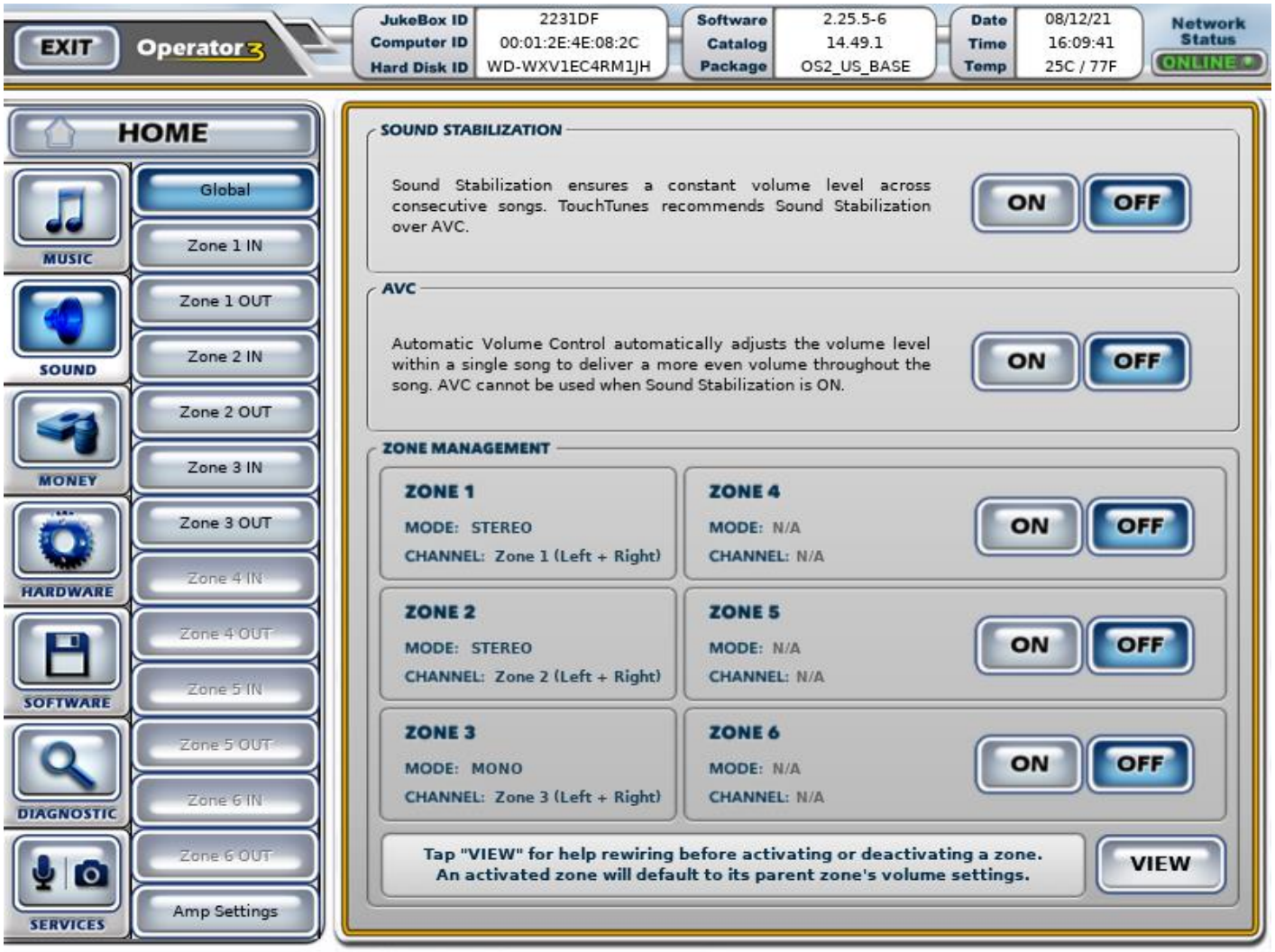
If you need to enable Karaoke on a jukebox, but are prevented from doing so due to Zone Management being in use, turn off all extra zones on the Sound > Global screen to go back to the basic 3 zones. This will enable the Karaoke controls.

Zone Management on Tempo

Jukeboxes running software that supports Zone Management will show up on Tempo with 6 zones. Any extra zones activated on the jukebox will be configurable in Tempo, but the settings to activate or deactivate the extra zones will remain available only on the jukebox Operator screen.

Activating New Zones

Once your jukebox is running software that supports Zone Management, you may notice that the Sound section features new Zone buttons for zones 4 to 6. For now, these zones are disabled, but you can activate any or all of them from the Global section.



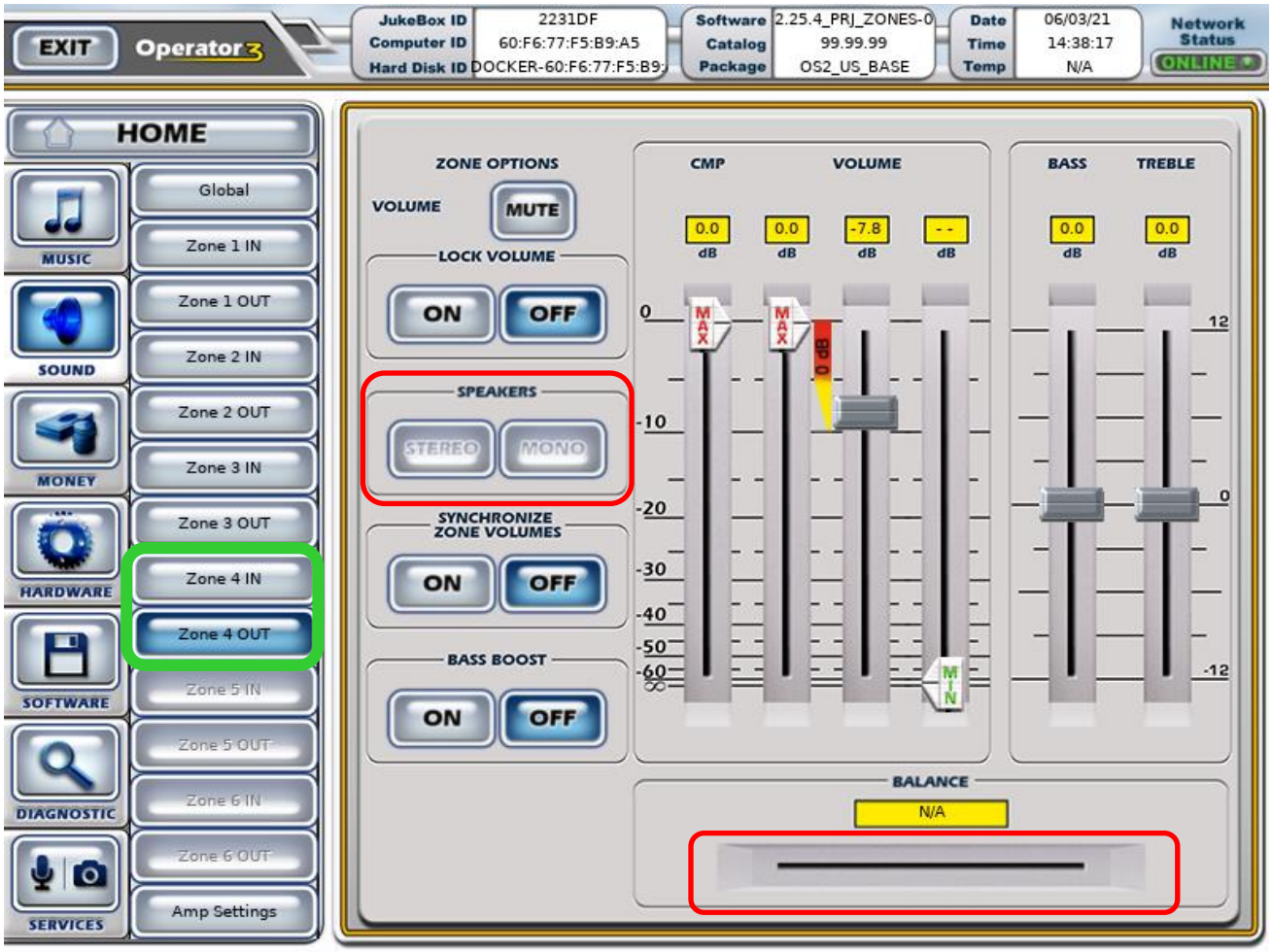
Any of the first 3 zones can be split into two independent mono zones.

You may also want to tap the VIEW button to bring up a speaker wiring diagram adapted to the jukebox you are working on. The diagram makes it easier to figure out which outputs are tied to which zone.

Zones are split as follows:

Activated Zone	Channels Used	
Zone 4	Zone 1 **Left** channel becomes **Zone 1**	Zone 1 **Right** channel becomes **Zone 4**
Zone 5	Zone 2 **Left** channel becomes **Zone 2**	Zone 2 **Right** channel becomes **Zone 5**
Zone 6	Zone 3 **Left** channel becomes **Zone 3**	Zone 3 **Right** channel b ecomes **Zone 6**

Once you activate Zones 4, 5 or 6, the IN and OUT sub-sections for that zone will be enabled, allowing you to adjust its audio settings independently of the zone from which it was split.



Split zones are forced to mono, so the mono/stereo and balance controls are now disabled. (Zones that are not split can still be set to either stereo or mono, as needed.)

Note: When activating a zone, all its associated volume and tone settings are copied from its "parent" zone. In other words, Zone 4, when activated, will have the same volume and tone settings as Zone 1.

Note: A single split zone will provide less power than using both channels of a zone that is not split. In other words, activating additional zones will not provide more volume than you would get from a full-volume zone that is not split.

Note: Zone splitting is incompatible with Amplifier Bridging. While a particular zone is bridged, its zone splitting controls will be disabled, and while a particular zone is split, its bridging controls will be disabled.

For more on amplifier bridging (available on Virtuo and Angelina jukeboxes, as well as other MHP-based jukeboxes) see:
http://documents.touchtunes.com/900674-001-Bridging%20Virtuo%27s%20Internal%20Amplifier-Rev00.pdf

Reverting

If you ever need to revert / disable zone 4, 5 or 6, remember to reduce the volume, then rewire the speakers appropriately before de-activating the zone.

Remote Control

In order to allow you to control the volume of the new zones using your existing wireless remote control, we've added a way to toggle between controlling the volumes of zones 1 to 3 or 4 to 6.

New Overlay Decal

As part of your Zone Management package, you will find a new overlay decal for the remote control that includes six-zone compatibility.

Switching between Zone Sets

Press the '9' button on the remote control to toggle between controlling Zones 1 to 3, or Zones 4 to 6. The LED Array (on Virtuo) or OSD will display the text "ZONE 1-2-3 VOL" or "ZONE 4-5-6 VOL" for a moment.

When a zone is not split, the volume buttons control that zone regardless of the current zone set. For example, if zone 5 is not enabled, the zone 2/5 buttons will always change the volume of zone 2, even when you've pressed 9 to control the volumes of zones 4-5-6.

Auto-Revert

If toggled to Zone Set 4-5-6 using the 9 key, after a few minutes, the volume zone set will automatically revert to 1-2-3. This is indicated on the LED Array or on-screen display by showing "ZONE 1-2-3 VOL".

Changing the Volume

Pressing the volume up or down buttons on the remote for a particular zone will move the volume up or down accordingly for that zone, and at the same time, the LED Array (on a Virtuo) or the On-Screen Display (on other jukeboxes) will indicate which zone is being changed and how its volume is changing.

The volume controls function differently if the Synchronize Volumes setting is ON.

Synchronized Zone Volumes

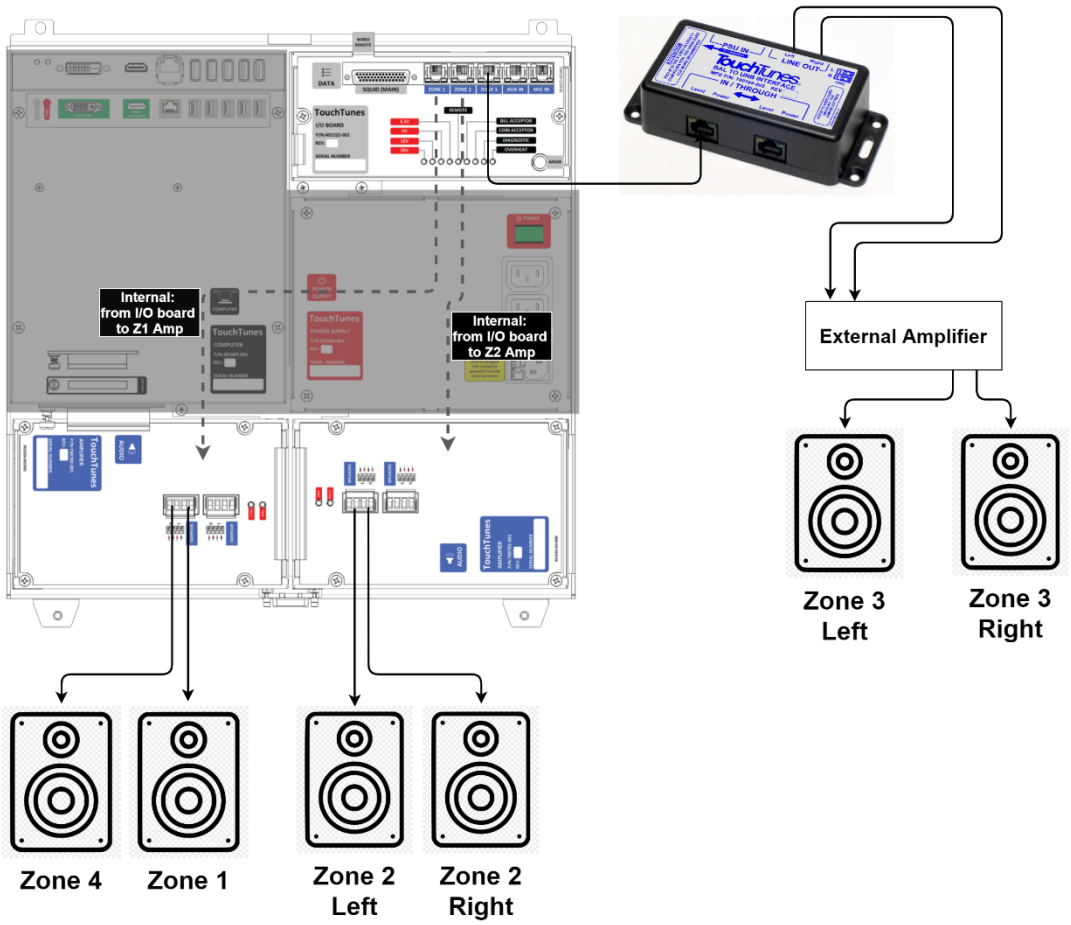
When zone volumes are synchronized, all volumes change at once, regardless of which volume buttons are pressed. If at least one of the extra zones is activated, the 6-zone volume bars are displayed on the LED Array or OSD, though any inactive zones won't be displayed.

Zone Management Examples

Below are some common use cases for activating additional zones with wiring suggestions and diagrams. **These diagrams show Angelina hardware, but the same wiring principles apply to other jukebox models.** Your jukebox will show a wiring diagram appropriate to its hardware when you press the VIEW button on the Sound > Global screen.

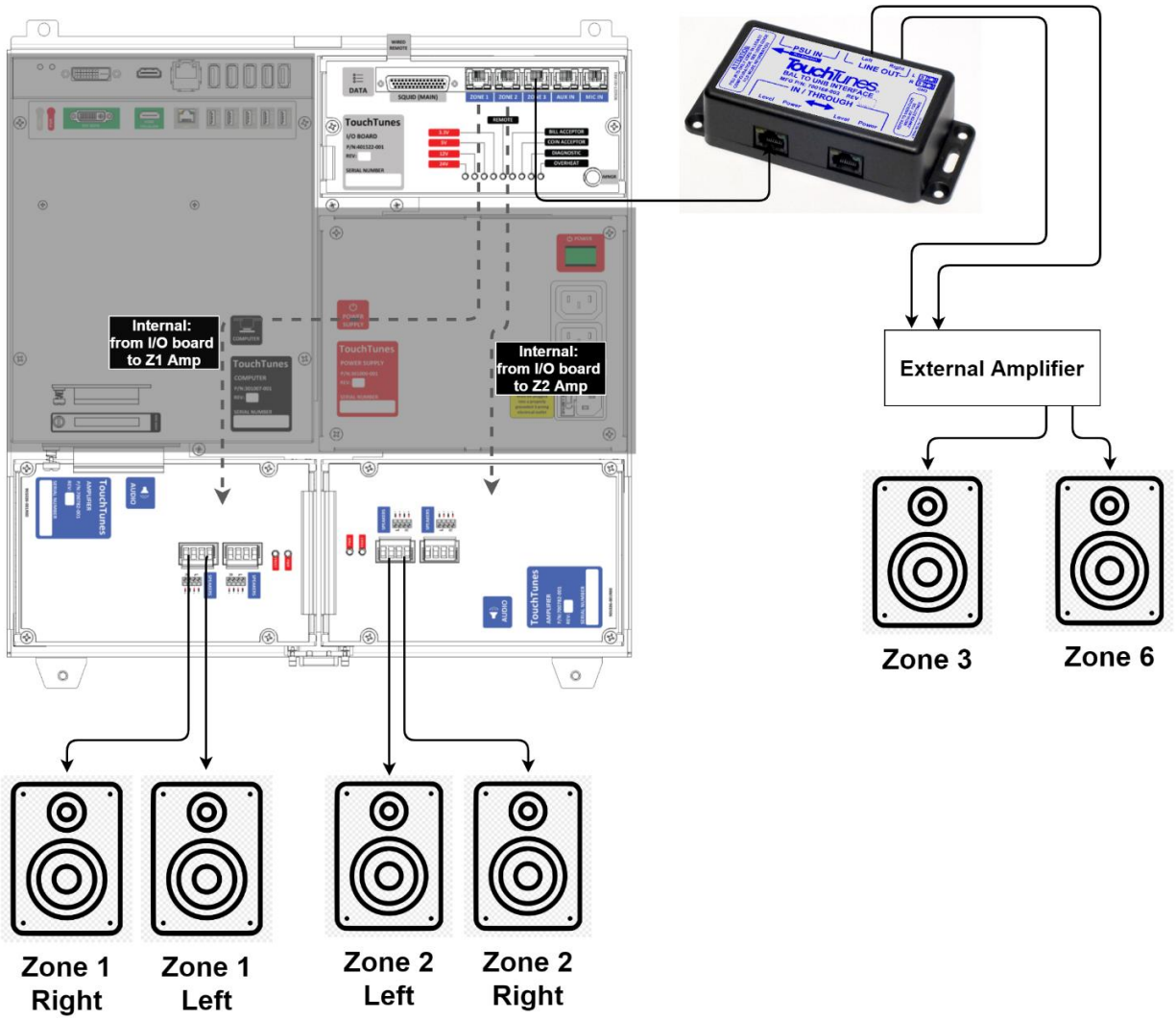
A - Adding an Internally Amplified Zone

The jukebox's internal amplifier normally powers up to 2 independent zones. If you need more zones powered by that internal amp, you can turn on Zone 4 or 5, which will effectively split Zone 1 or 2, and provide you with the extra zone you need.



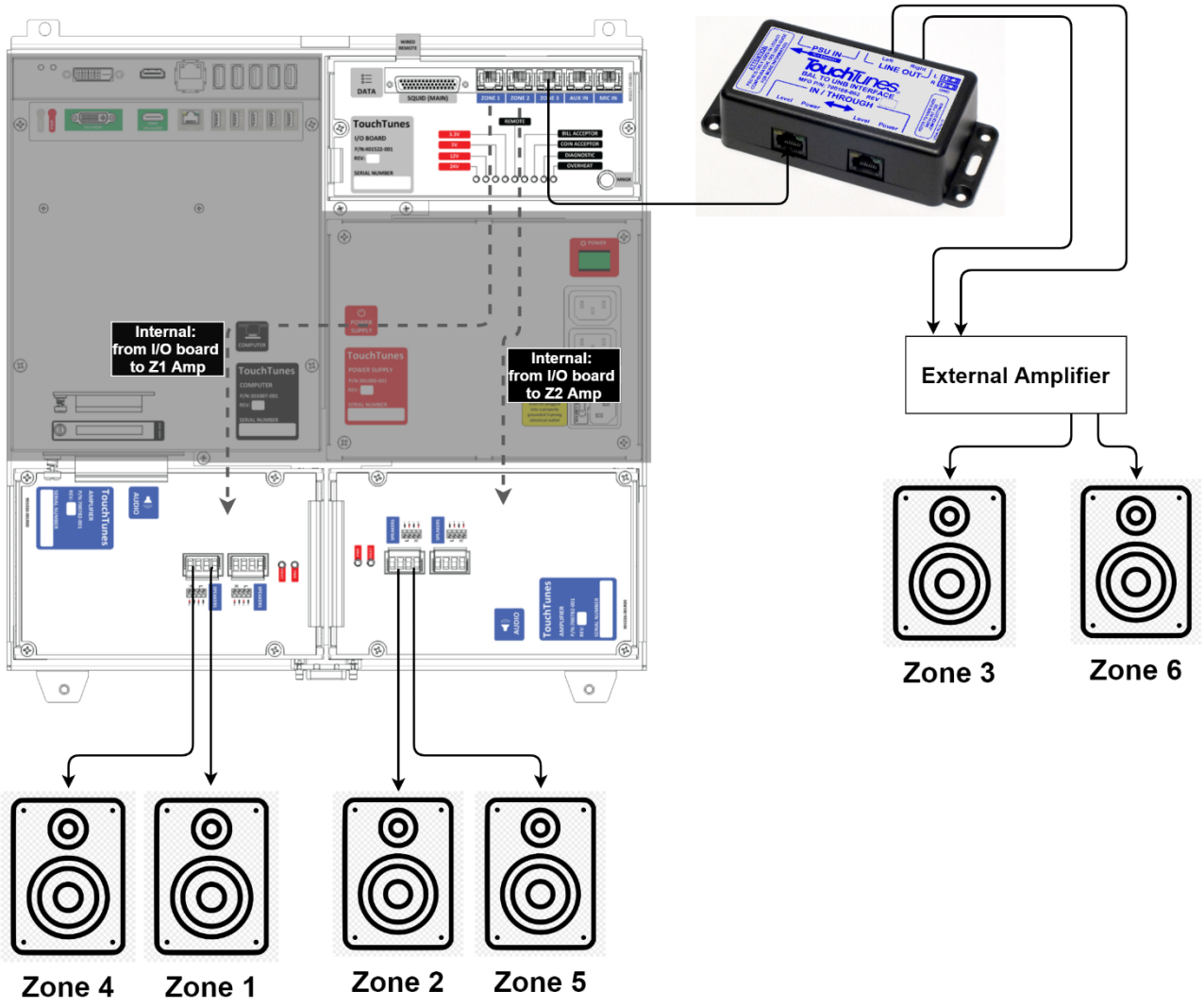
B - Adding an Externally Amplified Zone

If a single channel on the jukebox's internal amplifier is not enough to power the speakers you plan to use for an additional zone, you may consider splitting Zone 3 (which is usually connected to an external amplifier) and running the resulting Zones 3 and 6 through to a more powerful external amplifier that fits your needs.



C - Using All 6 Zones

When you need more direct control of the volume in many different places of the venue, you may consider turning on all the extra zones, which provides you with a total of 6 zones (with Zones 3 and 6 connected to an external amplifier.)



Real-World Situations with Solutions

Situation	Zone Setup	Description
The bartender wants to control the volume of the speaker behind the bar separately from the others, so he can still hear orders when the place gets loud.	Activate Zone 4 (see diagram A)	Wire zone 4 (formerly zone 1 right channel) to the speaker behind the bar, leaving zone 1 (formerly zone 1 left channel) to power a different speaker in the venue, at an independent volume.
The venue has an open area covered by two speakers wired to zone 1, while zone 2 is wired with one speaker for an area with tables and chairs, and another speaker covering the pool tables area. The people at the pool tables are complaining that the music is too loud and distracting, but when the volume is lowered, the people at the tables complain they can't hear the songs they queued. I want to set their volumes separately, but I don't want to have to buy an external amp just to power the speaker in the pool tables area.	Activate Zone 5 (see diagram A)	Wire zone 2 (formerly zone 2 left channel) to the tables, and zone 5 (formerly zone 2 right channel) to the pool tables, and adjust their volumes accordingly.
The bar has added a patio area for the warmer months, and they want to hear the music there as well, but I'm already using all 3 zones on the jukebox. I need to be able to set the patio volume separately from the indoor volumes, because of the neighbors…	Activate Zone 4, 5 or 6 (see diagrams A and B)	To save yourself some rewiring, figure out which zone currently has the speakers closest to the patio. If the speakers were using both channels from that zone, move those speakers to the Left channel, freeing the Right channel's wiring for the patio. Once you're all wired up, split the closest zone by activating the corresponding extra zone, and adjust the volumes as needed. **Caution:** make sure the impedance on both channels of the split zone is the same. If the impedance is different, it could cause some audio quality issues, and might even lead to the amplifier shutting down.
I'm installing a new jukebox in a venue that used to have a different jukebox with 4 independent zones, powered by the juke's internal amp.	Activate Zones 4 and 5 (see diagram A)	Wire your four speaker zones to the internal amp's Zone 1 Left, Zone 1 Right, Zone 2 Left and Zone 2 Right, and then activate Zones 4 and 5. On the screen where you activate those zones, it will tell you what each zone is wired to (for example, Zone 4 will say its Channel is Zone 1 (Right). With music playing, you can now adjust the volumes for each of these 4 zones.

Troubleshooting

Below are some solutions to issues you may face after rewiring your speakers and activating extra zones:

Problem	Probable Cause	Solution
Zone Management buttons are disabled	• Karaoke is enabled	• On the Services > Karaoke Options screen, set the “Karaoke Service” setting to OFF.
Can’t turn on Karaoke	• One or more extra zones is enabled • The jukebox is an Angelina, or an OS2 Kit.	• On the Sound > Global screen, make sure zones 4, 5 and 6 are all turned OFF (you may have to rewire some speakers.) • Angelina jukeboxes, and jukeboxes running an OS2 kit that is based off of Angelina do not support Karaoke. You will need a Virtuo or Playdium jukebox for Karaoke support.
No sound at all	• Certain connections were not made properly, preventing audio from being transmitted • Jukebox’s internal amplifier has gone into protection mode, due to an electrical problem (short-circuit, overload, etc.) • Jukebox is paused, or volume is too low	• Review all connections • Lower the output volume to its lowest setting, then slide it up slowly until you hear music again • Make sure jukebox is not paused

Problem	Probable Cause	Solution
Degraded sound quality (no bass, distortion, abnormal artifacts)	• One or more speaker wires may not be properly connected • If multiple speakers are connected to a single amplifier channel, the impedance of the speaker circuit maybe out of range for the amplifier (below 4 ohms) • Bass and treble settings may need adjustment, and Bass Boost setting may be wrong for this speaker configuration	• Disconnect, then re-connect each speaker wire in turn, making sure each wire makes a positive connection, and that all the speakers are wired in phase, plus to plus, minus to minus. • Use different speakers or reconfigure speaker groupings. In particular, when multiple speakers are connected to a single amplifier output channel, try keeping only one speaker connected to the channel. If that fixes the issue, the other speakers might be causing the problem, or the speaker circuit created by wiring the speakers together might have an impedance that is out of range for the amp. Rewire speakers from parallel to series to increase impedance. Aim for an impedance of about 4Ω for optimal results. • Rewire the speaker circuit for an impedance load that is closer to 4Ω • Some speakers might be out of phase with one another. First, verify the polarity of every speaker and every amp output connection (the label on the jukebox's amp indicates polarity). If the issue persists, try disconnecting each speaker in turn until the issue goes away – then, try inverting the polarity on the last speaker you disconnected.
Volume too low, despite volume setting being at or close to maximum	• Problems with wiring (wires are not fully connected) • Speakers have impedance much higher than 4Ω. • The power of a single amplifier channel is not enough for the speaker(s) used or the size of the room.	• Disconnect, then re-connect each speaker wire in turn, making sure each wire makes a positive connection. • Use speakers rated with an impedance of 4Ω. Many speakers designed for home use are rated for 8Ω: those speakers will be quieter. • If more than one speaker is connected to a single amplifier output channel, rewire the speaker circuit in parallel instead of series for a lower impedance load that is closer to 4Ω • Use more than one channel from the internal amplifier to power the speakers used for that room, add more speakers, or consider using an external amplifier that provides more power.

Contacting TouchTunes Technical Support

If you need help or have questions, call the TouchTunes Tech Line at 888-338-5853.

To help us assist you more effectively with problem reports, the following information may be required when contacting TouchTunes support:

- Jukebox model and ID
- Operator ID
- Serial number or part number of the component you believe to be defective
- Date/time of the problem
- Actions performed immediately before the problem occurred
- Any additional comments relevant to the problem

The Octave Music Group, Inc.

7250 Mile End, Suite 202
Montreal, Quebec,
Canada, H2R 3A4

The Octave Music Group, Inc.

850 Third Ave, 15th Floor
New York, NY 10022
USA

Technical Support

888-338-5853

www.touchtunes.com

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